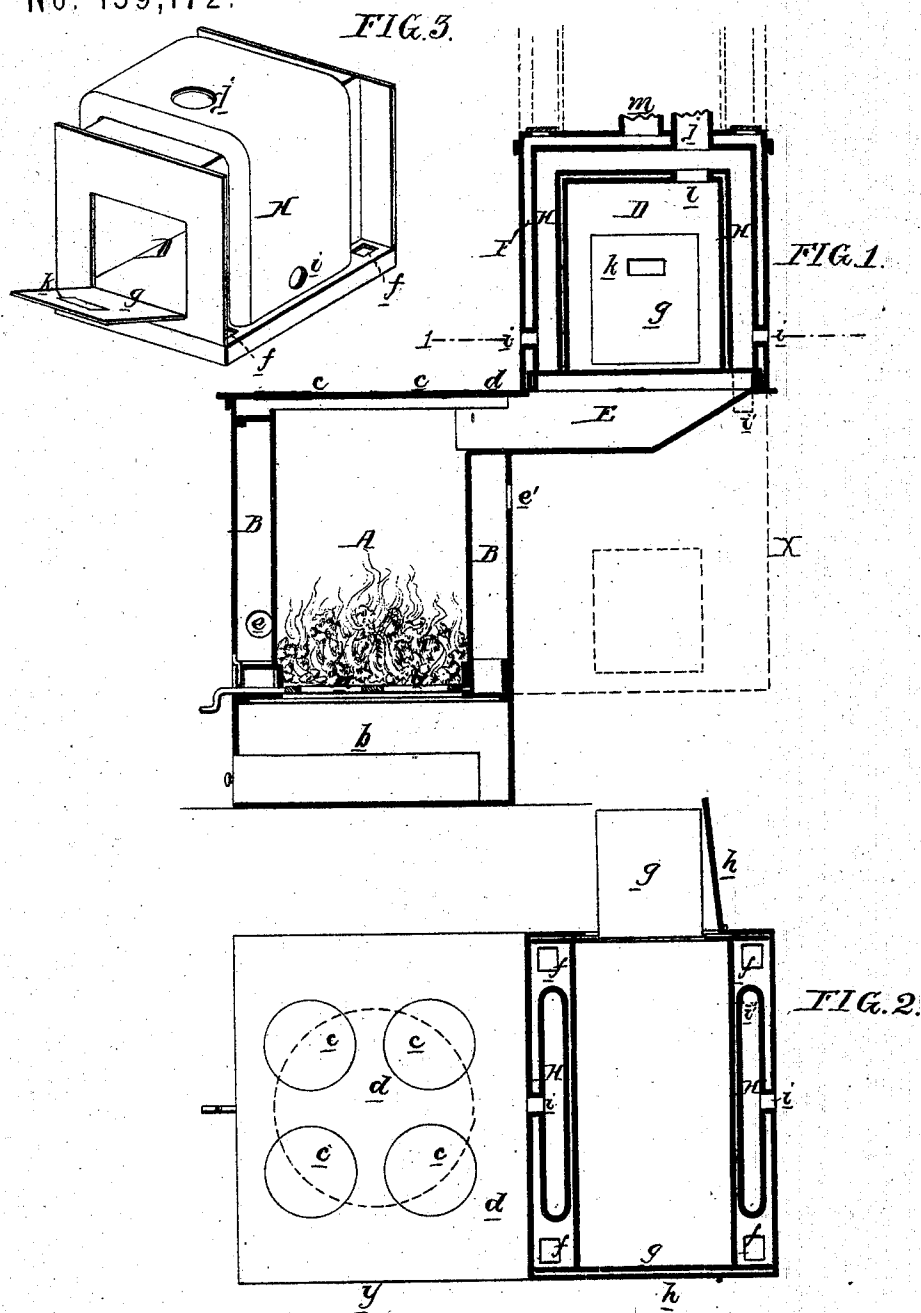


**B. McCONNELL.**  
**Combined Heating and Cooking Stoves.**  
 No. 139,172. Patented May 20, 1873.



Witnesses { Hubert Haysen  
 Harry Smith

Bernard McConnell  
 by his Atty.  
 J. Cowen & Son.

# UNITED STATES PATENT OFFICE.

BERNARD McCONNELL, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN COMBINED HEATING AND COOKING STOVES.

Specification forming part of Letters Patent No. **139,172**, dated May 20, 1873; application filed February 11, 1873.

*To all whom it may concern:*

Be it known that I, BERNARD McCONNELL, of the city and county of Philadelphia, State of Pennsylvania, have invented a Combined Heating and Cooking Stove, of which the following is a specification:

The object of my invention is to combine in one apparatus a cooking and a heating stove, and this object I accomplish by constructing the apparatus as I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical sectional view of the combined heating-furnace and cooking-stove; Fig. 2, a sectional plan view on line 1, 2, Fig. 1; and Fig. 3, a detached perspective view of the oven and hot-air flue surrounding the same, the outer casing being removed.

The fire-place A may be constructed as in ordinary stoves and ranges, it consisting, in the present instance, of a cylinder provided with a grate, *a*, beneath which are an ash-pit and drawer, *b*, the boiler-holes *c* being directly over the cylinder, in the flat top *d*, of the fire-place. The latter is surrounded by a chamber, B, into which cold air can be admitted through an opening, *e*, and discharged in a heated condition through an opening, *e'*, either into a flue leading to a distant portion of the building, or in a warming-oven, X, indicated by dotted lines in Fig. 1, and occupying the space at the rear of the fire-place and beneath the baking-oven D, which is set back from the fire-place, as shown, so that the latter may have a flat top with openings, &c., for the cooking of such articles as require to be placed directly over the fire. The whole of the products of combustion are conducted to the space directly beneath the oven D, through an inclined passage, E, and rise from the latter through four openings, *f f f f*, at the corners, into the chamber F which surrounds the oven. These openings *f f*, &c., may be provided with dampers, to be so regulated as to insure the passage of an equal portion of heated gases through each; or a series of small apertures in the bottom of the chambers surrounding the oven may be substituted for these corner-openings. The oven is entirely surrounded except at the bottom by the chamber F, and is provided with doors *g g* at its opposite ends, adjoining cor-

responding doors *h h* in the outer casing, as shown in Fig. 2, and as fully described in my patent of May 21, 1872. A considerable portion of the interior of the chamber, F, is occupied by a flattened double-elbow flue, H, extending upward on both sides of and over the top of the oven, as best observed in the perspective view, Fig. 3, the said flue being provided with openings *i i* at the sides, or at the bottom, as indicated by dotted lines *i'* for the admission of cold air, and with an opening or openings, *j*, at the top for the discharge of heated air from the same, both the inlet and outlet openings being provided with registers, not shown in the drawing, by means of which they may be opened or closed. The oven D is also provided at one or both ends, with cold-air inlet-openings *k*, provided with registers, and the said oven communicates at the top through an opening, *l*, also provided with a register with the hot air-flue, H, and its outlet or outlets.

When the oven D is to be used for baking, the whole of the products of combustion are directed to the space beneath and surrounding the same, and the whole of the heat is employed for maintaining the required high temperature in the oven, the registers at the ends and top of the latter being closed, as well as those covering the inlet and outlet openings of the flue H, so that the products of combustion are deprived of none of their caloric for the heating of cold air, but are utilized for the heating of the oven exclusively. In like manner when the oven is not in use, the products of combustion are utilized for the sole purpose of heating a large volume of cold air, which, when the registers covering the openings *i*, *j*, *k*, and *l* are withdrawn, passes into and through the oven and flue H, with the walls of which the hot products of combustion passing through the chamber F are brought in immediate contact. The products of combustion, after having been thus deprived of the greater portion of their heat, pass off through a pipe, *m*, to the chimney, and the hot-air passage communicates with flues leading to different portions of the building to be heated.

In some instances I propose to employ two ovens, one arranged directly above the other.

In such case the walls of the chamber F would be extended vertically upward as indicated by dotted lines in Fig. 1, so as to inclose both ovens, between which would be a narrow space for the free passage of the heated products of combustion, while the flue H would be extended upward, adjacent to the sides of both ovens, and over the top of the uppermost one.

If the improved heating and cooking apparatus is to be portable, I prefer to construct it as shown in the drawing—that is, with the oven and air-heating chambers and flues at the rear of the fire-place; but, in building a permanent range into or against a wall on the same plan, I propose to set the oven to one side of, instead of at the rear of, the fire-place. In Fig. 2, for instance, the line *y* would represent the front of the range, with an oven or ovens, D, at the right-hand side of the same;

or it might be at the left side, if more convenient.

I claim as my invention—

1. The combination of an oven or ovens, an outer casing, flues or passages, through which the products of combustions can pass in direct contact with the oven and casing, and an intermediate air-flue, H, as set forth.

2. The combination with the said flue H, of inlet and outlet passages, as described.

3. The combination, with the oven, outer casing, and flue H, of the passage E communicating with the fire-place A, as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BERNARD McCONNELL,

Witnesses:

WM. A. STEEL,  
HUBERT HOWSON.